

**REMARKS**

Claims 1, 3 and 6-10 are all the claims pending in the application.

In response to the Requirement for Information mailed July 23, 2007, Applicants provide the following in response to the questions set forth in the Action at page 2:

- 1. Is there a particular organic conceptual chart or charts that are used to determine the I/O value as instantly claimed? If so, please provide the chart or charts.**

Applicants submit herewith a copy of Table 1.1 (Table of Groups Having Inorganic Property) shown in "Yuki Gainen Zu (Organic Conceptional Chart)", written by Yoshio Koda and published by Sankyo Publishing Co., in 1984, and a certified English translation thereof (Attachment A).

Additionally, to assist the Examiner's understanding of the estimation of the I/O value utilizing the Table, Applicants submit a Declaration which explains the details of the calculation process for the estimation of the I/O value.

- 2. How is a chemical structure broken down to evaluate which portions of the structure are inorganic and which portions are organic for purposes of calculating the I/O value?**
- 3. How is the determination made as to whether a portion of a chemical structure is considered organic or inorganic for purposes of calculating the I/O value?**

In response to questions 2 and 3 Applicants submit that there is basically no need for those skilled in the art to conduct any experiments for breaking the chemical structure or for measuring some numerical property of the chemical structure to obtains its I/O value. As would be understood from the attached Declaration, an inorganic property value and/or organic property value of each of atoms, groups and partial structures in a chemical structure is available from the Table, and thus an I/O value of the whole compound can be easily estimated therefrom.

- 4. Why would a benzene ring be considered inorganic as stated in the calculation of I/O value set forth at column 5, line 65 to column 6, line 31 of U.S. Patent No. 6,635,320?**

Applicants submit that a benzene ring is considered to be inorganic simply because the Table classifies a benzene ring as a group having an inorganic property value.

- 5. Please provide examples of how the I/O values are calculated by providing the calculations and values for the portion of the cationic polymers of Synthesis Examples 4-7 of U.S. Patent No. 6,743,850 that represent A and B of the polymer of General Formula A.**

Applicants submit that the attached Declaration is believed to sufficiently include this information.

In addition, Applicants submit that claim 1 is amended herein to further clarify the language of claim 1, which necessarily has the cationic resin including the unit represented by the formula (1) and may additionally have the cationic resin including the unit represented by formula (2).

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

RESPONSE TO REQUIREMENT FOR INFORMATION  
AND AMENDMENT UNDER 37 C.F.R. § 1.111  
Application No.: 10/715,600

Attorney Docket No.: Q78466

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

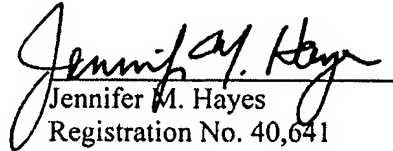
Respectfully submitted,

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WASHINGTON OFFICE

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Date: November 21, 2007

Appl. No. 10/715,600  
Docket No. Q78466  
Inventor: Shigetomo TSUJIHATA, et al.  
Amdt. Dated November 21, 2007  
Attachment A

DECLARATION

I, Yuko Kudo, a staff member of TAIYO, NAKAJIMA & KATO, 3-17, Shinjuku 4-chome, Shinjuku-ku, Tokyo 160-0022, Japan, do hereby declare that I am well acquainted with the English and Japanese languages and I hereby certify that, to the best of my knowledge and belief, the following is a true and correct translation made by me into the English language of the document in respect of "*Yuki Gainen Zu* (Organic Conceptional Chart)", that was written by Yoshio Koda and published by Sankyo Publishing Co., in 1984.

Dated this 30th day of August, 2007



Yuko Kudo

Table 1.1 Table of Groups having Inorganic Property



Group having inorganic property	Value	Group having organic property and inorganic property	Value	
			Organic property value	Inorganic property value
Light metal (salt)	$\geq 500$	$R_4Bi-OH$	80	250
Heavy metal (salt), amine, and $NH_4$ salt	$\geq 400$	$R_4Sb-OH$	60	250
$-AsO_3H_2$ , $>AsO_2H$	300	$R_4As-OH$	40	250
$-SO_2-NH-CO-$ , $-N=N-NH_2$	260	$R_4P-OH$	20	250
$\rightarrow N^+-OH$ , $-SO_3H$ , $-NH-SO_2-NH-$	250	$-OSO_3H$	20	220
$-CO-NH-CO-NH-CO-$	250	$>SO_2$	40	170
$\rightarrow S-OH$ , $-CO-NH-CO-NH-$	240	$>SO$	40	140
$-SO_2-NH-$	240	$-CSSH$	100	80
$-CS-NH-$ , $-CO-NH-CO-$	230	$-SCN$	90	80
$=N-OH$ , $-NH-CO-NH-$	220	$-CSOH$ , $-COSH$	80	80
$=N-NH-$ , $-CO-NH-NH_2$	210	$-NCS$	90	75
$-CO-NH-$	200	$-Bi<$	80	70
$\rightarrow N\rightarrow O$	170	$-NO_2$	70	70
$-COOH$	160	$-Sb<$	60	70
Lacton ring	120	$-As<$ , $-CN$	40	70
$-CO-O-CO-$	110	$-P<$	20	70
Anthracene nucleus and phenanthrene nucleus	105	$-O-[-CH_2-CH_2-O-]-CH_2-\dagger$	30	60
$-OH$	100	$-CSS\Phi$	130	50
$>Hg$ (covalent bond)	95	$-CSO\Phi$ , $-COS\Phi$	80	50
$-NH-NH-$ , $-O-CO-O-$	80	$-NO$	50	50
$-N<$ ( $-NH_2$ , $-NH\Phi$ , $-N\Phi_2$ (amine-based substituents))	70	$-O-NO_2$	60	40
$>CO$	65	$-NC$	40	40
$-COO\Phi$ , naphthalene nucleus, and quinoline nucleus	60	$-Sb=Sb-$	90	30
$>C=NH$	50	$-As=As-$	60	30
$-O-O-$	40	$-P=P-$ , $-NCO$	30	30
$-N=N-$	30	$-O-NO$ , $-SH$ , $-S-$	40	20
$-O-$	20	$-I$	80	10
Benzene nucleus (general benzene monocyclic ring)	15	$-Br$	60	10
Ring (general non-benzene monocyclic ring)	10	$=S$	50	10
Triple bond	3	$-Cl$	40	10
Double bond	2	$-F$	5	5
		Iso branch* $>-$	-10	0
		Tert branch* $\rightarrow-$	-20	0

[Note] An organic property value of carbon atom(s) in a group that is classified in the "group having inorganic property" should be added to a sum of organic property values. An organic property value of carbon atom(s) in a group that is classified in the "group having organic property and inorganic property" has been accounted into the organic property value thereof.

\* : Applied to non-cyclic portions. ✕ : Applied to terminal portions. † : Value for the portion in the parenthesis.

## 1.3 有機化合物の性状のグラフ化 13

表 1.1 無機性基表

無 機 性 基	数 値	有機性兼有無機性基	数 値	
			有機性	無機性
軽金属 (塩)	500以上	R <sub>4</sub> Bi-OH	80	250
重金属 (塩), アミンおよび NH <sub>4</sub> 塩	400以上	R <sub>4</sub> Sb-OH	60	250
-AsO <sub>3</sub> H <sub>2</sub> , >AsO <sub>2</sub> H	300	R <sub>4</sub> As-OH	40	250
-SO <sub>2</sub> -NH-CO-, -N=N-NH <sub>2</sub>	260	R <sub>4</sub> P-OH	20	250
>N <sup>+</sup> -OH, [SO <sub>2</sub> H], -NH-SO <sub>2</sub> -NH-	250	-OSO <sub>2</sub> H	20	220
-CO-NH-CO-NH-CO-	250	>SO <sub>2</sub>	40	170
>S-OH, -CO-NH-CO-NH-	240	>SO	40	140
-SO <sub>2</sub> -NH-	240	-CSSH	100	80
-CS-NH <sup>+</sup> , -CO-NH-CO <sup>+</sup>	230	-SCN	90	80
=N-OH, -NH-CO-NH <sup>+</sup>	220	-CSOH, -COSH	80	80
=N-NH <sup>+</sup> , -CO-NH-NH <sub>2</sub>	210	-NCS	90	75
-CO-NH <sup>+</sup>	200	-Bi<	80	70
>N→O	170	-NO <sub>2</sub>	70	70
-COOH	150	-Sb<	60	70
ラクトン環	120	-As<, -CN	40	70
-CO-O-CO-	110	-P<	20	70
アントラセン核, フェナントレン核	105	-O-(-CH <sub>2</sub> -CH <sub>2</sub> -O-)-CH <sub>2</sub> -†	30	60
-OH	100	-CSSφ	130	50
>Hg (共有結合)	95	-CSOφ, -COSφ	80	50
-NH-NH-, -O-CO-O-	80	-NO	50	50
-N<(-NH <sub>2</sub> , -NHφ, -Nφ <sub>2</sub> ) アミン性	70	-O-NO <sub>2</sub>	60	40
>CO	65	-NC	40	40
-COOφ, ナフタレン核, キノリン核	60	-Sb-Sb-	90	30
>C=NH	50	-As=As-	60	30
-O-O-	40	-P=P-, -NCO	30	30
-N=N-	30	-O-NO, -SH, -S-	40	20
-O-	20	-I	80	10
ベンゼン核 (一般芳香族単環)	15	-Br	60	10
環 (一般非芳香性単環は不問)	10	=S	50	10
三重結合	3	-Cl	40	10
二重結合	2	-F	5	5
		Iso 分枝※ 	-10	0
		Tert 分枝※ 	-20	0

(注) 上記無機性基中の炭素は有機性に加算すること。ただし有機性兼有基中のものは並有有機性中に加算済みとす。  
 \* 非環式部分に適用。 ※ 末端部分に適用。 † ( ) 内の部分の値

比較から算出したものもある。

表中の右欄に掲げた R<sub>4</sub>BiOH 以下のものは、その沸点曲線上の定位置から後記の溶解度や分配率などを推算すると、実際の値と甚だしい相違を示すものである。このような基では、極性基内部の結合状態が無視できない程度に相当な共有結合性を含んでいるか、ま

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